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ABSTRACT

This report is a summary statement about a broad-based longitudinal study being conducted by Head Start. It concerns the effects of early school experiences on over 1800 disadvantaged children, ages 4 to 8, and their families who live in four poverty areas. The report (1) raises basic questions about the nature of education, learning, and researcher; (2) explains the potential value of the study in terms of its design; (3) describes the types of information being collected and the data gathering procedures being used; (4) describes the children, families, and communities involved in the study; and (5) discusses preliminary findings and their implications. Variables important to the study are cognitive, social, personal, and physical developmental characteristics (related to differing environments) and family characteristics. (DP)

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SUMMARY REPORT

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DISADVANTAGED CHILDREN AND THEIR FIRST SCHOOL EXPERIENCES

ETS - Head Start Longitudinal Study

PRELIMINARY DESCRIPTION OF THE INITIAL SAMPLE PRIOR TO SCHOOL ENROLLMENT

ETS JULY 1971

EDUCATIONAL TESTING SERVICE
PRINCETON, NEW JERSEY

ED 084040

Summary Report

DISADVANTAGED CHILDREN AND THEIR FIRST SCHOOL EXPERIENCES

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Preliminary Description of the Initial Sample Prior to School Enrollment

Report Under

Grant Number H-8256-C

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The conclusions and recommendations in this report are those of the contractor and do not necessarily reflect the views of the U. S. Department of Health, Education, and Welfare or any other agency of government.

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Virginia Shipman
Principal Investigator

Princeton, New Jersey
July 1, 1971

SUMMARY

This report concerns what is perhaps the most complex study yet undertaken by the Head Start Research Office. It is a summary statement whose intent is to: (1) raise some basic questions about the nature of education, human learning and research; (2) explain the potential value of the study in terms of its design; (3) describe the type of information being collected--and how it is being collected; (4) describe the children, families, and communities involved in the study; and (5) discuss some preliminary findings and their implications.

1. EDUCATION, HUMAN LEARNING, AND RESEARCH

"Education is the reaction of society to the facts of development" (Bernfeld, 1925). It would be difficult to construct a more universal definition of the educational process than this, or to dispute Ekstein's (1969) recent observation that the adult community often reacts to children in terms of national concerns rather than developmental needs. One has only to look at the last ten years of shifting educational priorities in this country for confirming evidence of the above observation--from the "excellence" dominated concern that focused on science and mathematics curricula following the threat of Sputnik, to the advent of massive social action programs which have been responses to domestic pressure. This is not to imply that "reaction in terms of society's need" is necessarily misguided, but only that it may involve hazard. When such reaction becomes the dominant stance of a nation's educational system, then the dangers of short-sighted planning, premature evaluation, bitter disappointment and ineffective use of resources are prominent.

On the face of it, there are probably many reasons why a society would react to the young primarily in terms of its own needs. A major reason would appear to be that the needs of the child are either insufficiently understood, poorly formulated for public dissemination, or obscured by other issues and therefore not available to society for decision-making purposes. This is essentially a problem of the effective pursuit and communication of knowledge more than anything else, which, fortunately, can be substantially resolved by concerted research efforts. To contribute toward a better understanding of the "facts of development"--and how educational institutions and the larger community might rationally react to those "facts"--is what this longitudinal study in essence represents.

Of the knowledge we do possess about human development, certain things have not been sufficiently communicated to either professional teachers or the public at large. The complexity of intellectual development is a case in point. For example, a useful distinction can be made between the notions of construction and instruction which many Americans (including teachers and those engaged in educational research) have failed to appreciate until quite recently. The physical world in which we move about so easily is one that adults rarely think about--a world of time, space, number, cause and effect, object permanency. This world is not innately "given" to the child, however, nor can he possibly learn it by being told or "instructed" as to its characteristics. The child literally constructs (or reconstructs) the world of physical reality by his own vigorous interactions with it. In a similar manner, he constructs a basic understanding of language from the natural flow of speech that surrounds him. No one "instructs" the young child in how to speak and comprehend his native language. The implications of this

distinction for education would seem to be that instruction is most powerfully used in the service of construction; that instruction should complement--not stifle or compete with--the child's own constructive mental activity by helping him differentiate, synthesize, consolidate, and generalize. While these appear well warranted implications on the basis of present knowledge, we need more definitive information about the course of children's intellectual constructions over time and the nature of instruction which best facilitates overall cognitive development.

Although the complexity of what might be called "intellective processes" has been mentioned thus far, it is necessary to emphasize that these processes do not develop in isolation. They are shaped by, mutually reinforce, and merge with other facets of human personality--imagination, social and emotional characteristics, temperament, stylistic traits. And all of these, in turn, are influenced to a large extent by the nature of the child's interaction with his environment. Education's task does not consist merely in providing the right "mix" of instruction and construction; it extends to a broad concern for the quality of child life. And it is at this juncture that our knowledge is probably most hazy. How does the institutional nature of the school affect the community and vice versa; and what is the impact of these influences upon the child? What are the components of a "good" educational environment which foster unique abilities and emotional maturity as well as basic skills? Do these components remain relatively stable or change as the child grows older?

The acquisition of skills is often discussed as if it were an ultimate end of primary education; and great significance is attached to evidence (usually of the standardized test variety) that children have indeed mastered

the basic skills. Acquisition of a skill such as reading, however, is in many respects the starting point of education--it is a means whereby the child may now further his own experience, knowledge, aesthetic appreciation. Sheer skill in being able to read may meet some minimum definition of a "literate" population, but it does not define an informed, cultured, or caring population. On the other side of the coin, the process of education itself--the act of going to school--is frequently regarded almost as a necessary evil: the accepted and necessary means to some futuristic goal. Until the important "means" and "ends" of education are better understood, educators will tend to regard their primary responsibility as a rather simplistic charge--that of making the child into the man as quickly as possible. What such an attitude precludes is the possibility that a rich childhood is the surest foundation for mature adulthood.

What do these assertions about the complexity of learning imply for educational research? Above all else, they imply that research must be broadly conceived. It must be multivariable, that is, it must be directed not only to several aspects of intellectual functioning (the child's individual constructions, his acquisition of skills, his use of skills), but to other facets of his development as well--style characteristics, social and emotional development, attitudes toward self and others. It must take into account the quality of classroom life and of the larger family and community environment that surrounds the classroom. And it must look at all of these elements over time, if we are to untangle and identify those factors which can undermine even the best intentioned efforts of an educational institution and impoverish the rich resources which children possess. One can reasonably speculate that lack of money alone

does not constitute that poverty which truly impoverishes.

Such concerns are certainly commensurate with the broad objectives of a massive social action program such as Head Start, but they have thus far received relatively little concerted research effort. Much as we might desire it, there is no easy "short-cut" route to understanding the complex process of human growth and the influences of the environments in which it takes place. Broadly based, longitudinal research seems an essential step in providing concrete answers about the impoverishment of human resources and a better understanding of the complex process of human development--knowledge which should enable us to react with clearer vision to the "facts of development."

2. DESIGN OF THE STUDY

Rationale

While the general nature of the study was anticipated in the preceding section, specific features of its design will be discussed here. Officially entitled "The Longitudinal Study of Disadvantaged Children and Their First School Experiences," this research effort was initiated in the spring of 1967 as a cooperative venture of the Head Start Research Office (Office of Economic Opportunity) and Educational Testing Service.

The specific age range chosen for study was the critical developmental span of approximately 4 through 8 years of age--or from two years prior to entrance into the first grade through completion of third grade. This period is thought to be particularly important because it is a time during which many abilities consolidate and the child makes the social transition from familiar home surroundings to the world of school, peers, and unfamiliar adults. The first data were collected during the spring and summer of 1969

on over 1,800 children, the majority falling between the ages of three years nine months (3.9) to four years eight months (4.8). Of particular interest as the study progresses are those children who attend Head Start and Follow Through programs and the identification of differential growth patterns that may be associated with certain characteristics of these programs. At the present time most of the children are enrolled in Head Start, kindergarten, or other preschool programs; and all are scheduled to enroll in first grade in the fall of 1971. Data collection on these children and their family, community and school environments is planned to continue through spring of 1974.

It should be stressed that the ETS study is not intended as an evaluation of Head Start in the narrow sense of supplying some seal of approval/disapproval or a "go/no go" recommendation. It was recognized at the outset that there is no such thing as the Head Start program; there are many different programs with different combinations of characteristics. Granting such variation, what is the rationale for a longitudinal study design? Why not identify what appear to be the most significant program components and then study comparable groups of children who do and do not attend programs characterized by these components? This type of design which compares treatment and no-treatment groups has frequently been used in the past and is currently utilized in much of the Head Start "planned variation" research. Unlike the Westinghouse study on the impact of Head Start, such a design does not necessitate lumping all Head Start children together and contrasting them with "Non Head Start" children--on the post hoc assumption that they were comparable groups initially. Moreover, attention is paid to specifying the characteristics of the various Head

Start programs and of the children who participated in them in order to identify probable interactive effects. Implications for policy and practice in Head Start programs will derive from identifying what characteristics are particularly compatible for which children. The limitation of this common design, however, lies in certain restrictions it imposes upon the ability to interpret results.

Consider, for example, medical research in which comparable groups of subjects exhibiting similar symptoms were randomly assigned to different medical treatments and to a "no-treatment" condition. What would one be willing to state about the differential effectiveness of the treatments in question? While certain general conclusions might clearly be drawn, they would necessarily be limited to group (or "on-the-average") generalizations--with unknown validity for a particular individual. For example, did patient "A" receiving treatment "X" receive the "most effective" treatment for him, or would he have improved even more with treatment "Z"? Why did patient "B" improve even though he received no medical attention at all? Questions like these can be answered only with knowledge of how the particular disease evolves, what its most critical symptoms are, and how the symptoms respond to various treatments. A longitudinal study approach affords greater possibility for obtaining such knowledge than would the comparable group design.

Abandoning the medical analogy, what this means in terms of the present study is that our population was identified and information was gathered prior to the time when the target children were eligible to enter a Head Start program. Decisions about sending or not sending children to Head Start or kindergarten were therefore made in the ordinary way by the parents

involved, after the study was underway. Thus, given a lack of control in assigning children to "treatments" or programs, the prior information (baseline data) is used to assess the comparability of children receiving different treatments. In addition, by following the same children over a number of years, one can also assess the comparability of beginning grade school experiences for both Head Start and non-Head Start youngsters--i.e., the degree to which primary grade curricula are congruent with and capitalize on what the child has learned in preschool. Finally, a longitudinal design affords the opportunity to study variables which might be expected to have long term rather than short term effects. Such a strategy has potential value for answering many questions which have direct implication for Head Start policy and practice. Among other things, it offers the possibility to:

a. Determine the cognitive, personal, social and physical characteristics of "disadvantaged" children prior to any formal preschool experience, and to relate these characteristics to home and community variables;

b. Determine the differential characteristics of families that do and do not send their children to Head Start;

c. Identify the characteristics of preschool and primary grade programs in the sites and to determine the relationships among these characteristics within and between the educational levels involved;

d. Determine the cognitive, social and personal outcomes in children that seem to be associated with various aspects of compensatory preschool experience, and to study the permanence of such effects through the first three primary grades;

e. Determine the effects of Head Start on family and community characteristics and attitudes;

f. Obtain information about the characteristics of mobile versus non-mobile families and the children in them;

g. Relate particular characteristics of children and their growth patterns to particular characteristics of families and educational programs.

A longitudinal design thus enables better understanding of the interaction of variables over time--and this, in turn, promises greater insight into those critical conditions and processes which constitute truly "disadvantaged" and "facilitating" environments. It should be noted, however, that no single research design is the answer to the complex questions being posed. For example, by choosing to allocate resources to assess in depth the several domains of potential influence upon the child's development, the present study is restricted in degree of representative variation in Head Start programs. We have described some of the advantages of a longitudinal design and of a strategy that capitalizes on "natural" rather than randomly assigned groupings; these advantages are complemented by the information obtained from other research designs.

Aside from attempting to answer the several questions listed above, another potential contribution of the study is its provision of a unique data bank. Most knowledge of child development is based on data from middle class children; the ETS-Head Start Longitudinal Study affords an opportunity to obtain basic knowledge for more informed program planning for children from low-income families. The study is thus both basic research on human development and social research on the pressing domestic problems of poverty and alienation from the mainstream of society. It is also a practicum on how to do research in the real world and how to put the knowledge gained from such research to practical use as quickly as possible.

A detailed description of the study, including theoretical rationale and measurement considerations appears in ETS Project Report 68-4. Some of the critical design and logistic problems are also elaborated in the ETS brochure (RM-69-6) "Untangling the Tangled Web of Education" and ETS Project Report 69-12.

Selection of study sites

Other aspects of the research design concern the selection of study sites, the selection of a sample population within sites, and the cross-sectional comparison groups. The selection of study sites was a major task of the staff during the first two years of planning. Since sites had to offer an opportunity for children to attend Head Start, the areas considered were necessarily those with a substantial proportion of the population below the poverty level. Considerations of cost and feasibility of the study determined that four communities could participate; and these were selected according to the following major criteria: (a) Program. To be considered, a school system must serve children who have had an opportunity to attend a year-long Head Start program. To increase the variety of preschool-primary grade experiences, we preferred school systems with Follow Through programs and tried for at least one without a kindergarten. (b) National spread. Urban-rural variation, population stability, and representation from different sections of the country were all considered vital criteria. (c) Sufficient number of students. A community was considered eligible if it had a sufficient number of children in school and in the Head Start program. We attempted to obtain a reasonable racial mix and also took into account factors that might significantly change the area's characteristics during the life of the study. (d) Opportunity to follow. Bussing of children to schools outside their home districts and high mobility reduced the chance of a city being selected. (e) Cooperation. The study would, of course, be impossible without the cooperation of the community, including its school officials and community leaders. Areas whose continued support was doubted were disqualified. As an added condition, we decided that one

participating community should be relatively near to Princeton, thus making possible a close interaction between ETS staff and a local site.

The selection procedure began by examining a list of the 30 school systems having Follow Through programs at the time. The list was scrutinized carefully in terms of the other criteria and several school systems were selected for further investigation. Members of the ETS staff visited the respective sites for additional information, including evidence of willingness to engage in a relatively long-term study. Since the Follow Through program was nonexistent in any Southern rural school system which met all our criteria, additional lists of communities had to be reviewed as well. After an extensive period of information gathering and the preparation of a list of eligible pairs of cities to guide our selection, the following study sites were finally chosen:

Lee County, Alabama. Lee County is mainly a Southern rural area. There are two small cities, Auburn and Opelika, within the County; but outside city limits, the area is distinctly rural and poor. Auburn is dominated by its university which is a major employer in that city. Opelika has a few small factories and serves as the county seat. The population is approximately 33% black. (Lee County Community Profile. Statistics are based on 1966 U. S. census report. Washington, D. C.: Office of Economic Opportunity, 1970.)

Portland, Oregon. Portland is a medium-size city on the West Coast. Its population is fairly stable, having risen from 373,000 in 1960 to 375,000 in 1970. About 6% are black. Unlike the population of other large cities, Portland whites have not fled to suburbia. The population is better educated than in many other parts of the country, and poverty in Portland

is not as intense as in our other sites. (Statistics are based on 1970 U. S. Bureau of Census figures supplied by Opinion Research Corporation, Princeton, N. J.)

St. Louis, Missouri. St. Louis is a central city, with declining population amid quickly growing suburbs. The city's population dropped from 750,000 in 1960 to 607,000 in 1970. As the white population moved out of the city, the non-white population increased from approximately 29% in 1960 to 43% in 1965; it is believed to be nearly 50% in 1970. Largely industrial, the city is also a trading center. (Statistics are based on 1970 U. S. Bureau of Census figures supplied by local city officials.)

Trenton, New Jersey. Trenton is a small city on the Eastern seaboard. The city's population dropped slightly from 114,000 in 1960 to 102,000 in 1970. The non-white population was estimated to be 35-38% of the total population in 1968. The city is industrial and also serves as the state capital. (Statistics based on 1970 U. S. Bureau of Census figures supplied by local city officials.)

Selection of sample

Within these communities, school districts with a substantial proportion of the population eligible for Head Start were selected for participation. For the most part, the schools in the target districts are located near Head Start centers. It is in these school districts that the longitudinal sample is expected to be enrolled when they reach third grade in the fall of 1973. In each school district an attempt was made to include all children of approximately 3 1/2 to 4 1/2 years of age in the initial testing and data collection of 1969--although some children were excluded from the sample; e.g., children from families speaking a foreign language, and those with

severe physical handicaps. The 1969 sample was identified through a complete canvass of each neighborhood of the school districts and an enumeration of the resident children. Of this sample of over 1800 children, some will move and be lost to the study, but the design allows us to add children who move into the preschool and school classes of children in the original sample.

Cross-sectional comparison groups

In discussing the study design, a final word should be said about the cross-sectional testing of comparison groups during the spring of 1970. Children in kindergarten through grade 3 attending the target schools last year were tested and various characteristics of their school programs described. We plan to readminister these measures to the same grades in 1973-74. These cross-sectional comparison groups are viewed as an important design feature, principally as they provide a source of baseline data against which to interpret longitudinal results. Comparisons should be especially relevant in communities experiencing major social changes or upheavals during the course of the study and with respect to the cumulative effects of compensatory education.

3. MAJOR STUDY VARIABLES AND DATA COLLECTION PROCEDURES

Overview

So far, the two years of research with the longitudinal study sample have included a total of about twelve hours of testing for each child, three hours of interviews with each of their mothers, an hour-and-a-half of observing each mother-child pair working together on tasks, and a physical examination for each child. In addition, there have been eighteen days of observing what happened in Head Start classes, two half-hour periods of

watching each child during "free play" in his class, about four hours of each Head Start teacher's time to supply information about herself and the children in her classes, an hour from each Head Start aide, more than an hour of each Head Start Center Director's time to describe the centers in general, and many consultations with community agencies to obtain information about the environments in which the children live. As mentioned previously with respect to the cross-sectional testing, data were also collected during Spring 1970 from all children and teachers (K-3rd grade) as well as from administrators in the elementary schools which the study children will be attending.

The major variables toward which these information gathering efforts have been directed include: (a) The Family, both status and process variables, that is, those variables describing what the family is (e.g., ethnic membership, occupational level) and what it does (e.g., the mother's teaching styles with her child and her attitudes towards the schools and the learning process); (b) The Teacher, including such things as background characteristics, attitudes, abilities, teaching goals; (c) The Classroom, both program components and child-child and teacher-child relationships; (d) The School, both physical characteristics and organization as well as relationships between teachers and administrative staff; and (e) The Community. The largest percentage of measures included, however, were those designed to tap several aspects of (f) The Child--e.g., health information, perceptual-motor development, cognitive development, personal-social development. While a detailed description of these measures is not appropriate here, it does seem important to mention something about their general nature. Testing is usually thought of as "serious business," a procedure in which grim-faced

individuals determinedly put pencil to paper. Four-year-olds are not apt to see it that way, however--nor would they subject themselves to such an experience if they did! If it is to be successful, the testing of young children must involve attractive, game-like materials and be conducted in a pleasurable social context. Thus our "child measures" included such things as blocks, toy cars, dolls, picture story books--and the children "took their tests" sitting at a table, standing up, sprawled on the floor, or sitting on an examiner's lap. Indeed, many casual outside observers would have found it difficult to distinguish a play area from a testing room at the test centers.

This admittedly cryptic summary of study content will have to suffice as an overview, since elaboration of the many variables and constructs within each of the above categories is clearly beyond the scope of the present report. A thorough explication of the study rationale, variables, and measurement strategy is contained in a 279-page document submitted to OEO in December 1968 (ETS Project Report 68-4). Some variables, however, will be described in greater detail in the last section of this report on "Preliminary Findings."

Research logistics

Having shelved further discussion of content for the time being, we move next to a consideration of the study's logistics or the day-by-day progression of data collection. The research procedures used with any given population should reflect sensitive recognition of the conditions existing within that population. While the point seems obvious enough, it has been more often ignored than honored in actual practice, particularly with "disadvantaged" populations.

The way things "really are," of course, is as complex and varied as the people who live in a community--disadvantaged or otherwise. Still, few would quarrel with the statement made by one black psychologist discussing research in the ghetto: "These times are potentially explosive in the black community. A complex subject, highly charged emotionally, mixed with countless fears and anxieties requires experts to handle the special problems..." As another ghetto resident and activist succintly put it: "We're sick and tired of graduate students with clipboards..." With an increasing number of research studies focusing on the ghetto, there are good reasons for these expressions of concern. Among the most compelling reasons for discontent and disenchantment are the stark, undeniable facts that the people living in the ghetto--the "subjects" of so much recent investigation--have rarely: (1) received any visible benefits from all the research flurry; and (2) had any control over what research was to be done or how it was to be done. To the extent possible, we have tried to alleviate both of these conditions in the present study.

As the first step in a hopefully better direction, we immediately initiated communication with leaders of the poor community in each of the study cities. Formal leaders, represented by the community action agency officials, and leaders of established organizations were informed about the study at the time their city became a serious candidate as a site. Other people who did not occupy formal leadership positions but who were influential in the community were also consulted. At the same time, cooperation and understanding of the study were sought from school administrators and boards. Because we felt it was of utmost importance, we asked that written intents (not merely consents) to participate in the study be

sent to ETS by both community agencies and local school boards.

We also recognized that there are feelings of frustration in a community when it appears that outsiders are the only ones qualified to manage research operations, give tests, conduct interviews, etc. Communities in which research is conducted must be actively involved on both sides of a study. Thus, after final site selection, we placed on our staff a full-time person from each of the communities to work as the local study coordinator. This person was responsible for the initial screening of all local (part-time) project personnel, the day-by-day management of project operations, and public relations within the community and city. In addition, the local coordinator was an active participant in joint decisions with ETS Princeton staff regarding the final hiring (and occasional firing) of local personnel. All coordinators naturally received intensive briefings about the study and continuing support whenever necessary from our professional staff. Major briefing sessions were held at the Princeton office, but discussions and the working through of problems more frequently took place at the local sites during periodic visits by Princeton staff. For all involved, however, the telephone turned out to be the mainstay of ongoing communications.

From the beginning of the study it had been argued that the use of local people as testers, interviewers, observers, etc. would facilitate community cooperation, increase the validity of the data obtained, and provide training which would contribute to future employment possibilities for community residents. This line of reasoning was carried into practice by ETS during the testing phase of the study--and by Audits and Surveys, a New York City firm, during the initial enumeration and interview phase of the study.

Enumeration and Parent Interviews

The first phase of data collection, enumeration and parent interviews, was undertaken by Audits and Surveys (A&S), under sub-contract with ETS. Their task was to locate all eligible households within the geographic areas being studied, based on a definition of eligibility supplied by ETS, and then to complete a 90-minute interview (also devised by ETS) with the mother or mother substitute of that household. Interviewers and an interview supervisor were recruited from the local community and a field office was established at each site. Interview supervisors and our local study coordinators worked in close cooperation, and, where feasible, even shared the same field office. Three interviewers in each city underwent extensive briefing in order to conduct the pilot testing of the interview in each of the four study sites.

Reactions of these interviewers to various parts of the briefing were useful in evaluating the training methods to be used with the majority of interviewers for the main part of the survey. Once the interviews were completed, an extensive debriefing session took place at a meeting with all three interviewers present. On a question-by-question basis, each interviewer was asked about her reactions to the question, about her opinion of each respondent's reaction, and about the types of answers she obtained. This entire debriefing was taped for further analysis by both A&S and ETS staff and it proved to be extremely useful in the final revision of the questionnaire and of training procedures. For example, greater sensitivity was gained to the different meanings which questions about one's neighborhood might have for a city dweller and one who lived five miles from the nearest neighbor. Thus, community residents actively participated in shaping both the content and

procedures of the research to be conducted in their community.

Tester training

Phase two of the data collection process involved administration of the individual test measures chosen for the study. The general procedures in the field were the same at each site. Prior to the arrival of an ETS training team, the local coordinator preselected tester trainees, choosing approximately 30% more than the number who would eventually be hired. All trainees were female. The usual educational credentials were not required, but experience in working with young children was considered highly desirable. Our judgments as to the adequacy of the tester's affective reactions to young children and her ability to learn the tasks were the two focal criteria for final selection. Most of the trainees were housewives who had limited working experience, and most were black.

The on-site training was undertaken at staggered intervals--starting March 17 (1969) in Lee County, March 31st in Portland, April 14th in Trenton, and April 28th in St. Louis. During the first two weeks at each site, training took place in the local coordinator's office. After receiving a general orientation to the project and the testing of young children, trainees began on the very first day to practice one of the simpler tasks. As this first stage progressed, each task was demonstrated, and trainees practiced administering it to each other and to children volunteered by their friends and neighbors.

During the third week, we moved to the actual testing centers which were located in churches or community recreation facilities in or near the district where the target children lived. (In both Portland and Trenton, the local coordinator's office was also located in a target district.)

Each center provided, at a minimum, six individual testing rooms or partitioned spaces and a larger play and rest area; most also included kitchen facilities. An ETS staff trainer was assigned to each center to ensure the adequacy of the physical arrangements, to inventory and ensure the adequacy of the testing supplies, and to function temporarily as a center supervisor so that trainees could concentrate on improving their testing skills. The local coordinator arranged for practice subjects who would be comparable to the sample children and provided for their transportation to and from the center. During the fourth (and sometimes fifth) week of testing practice, the trainees were observed by ETS staff--in all cases this included the project director and a senior member of the professional research team--in order to evaluate performance and select those women who seemed best prepared to function as a center supervisor, tester, or play-area supervisor. Following the evaluation, each trainee not selected was seen individually. Every attempt was made to structure the situation as a growth experience instead of a failure and to maintain the person's interest and involvement in the study.

Once staff selections were completed, each center operated one or two weeks more for a dry run. A Princeton office trainer remained at each center during this time to provide general assistance and additional instruction in testing while the center staff "settled into" their new roles. Once actual testing began, monitoring of center operations (except at Trenton) was assumed by ETS regional office personnel with the assistance of Princeton office staff.

As in training interviewers, piloting of procedures was an essential part of the training process. Although considerable effort had gone into the preparation of test manuals and formats to facilitate the handling of

test materials, refinement of these procedures awaited piloting in the field. The first two training sites (Lee County and Portland) were therefore used for continued simplification and clarification of testing and scoring procedures based on trainer experiences and trainee suggestions. Trainees and trainers were encouraged to discuss the merits of the various modifications, and not until it was time to test actual sample children were procedures stabilized for final production of manuals and scoring systems. From such cooperative efforts are derived not only more adequate measurement techniques, but the type of community-based research for which this study stands. Perhaps most important, it lends substantial credibility to the validity of the results we have obtained.

Field operations

Considering the innovative nature of the study, data collection during the first year went surprisingly well. Problems, however, inevitably arose. While they all loomed as potential crises at the time, coping and dealing with these problems provided valuable learning experiences for everyone and generated the kind of pride and "esprit de corp" which comes from cooperative group effort. In retrospect, some of the "crises" now occasion laughter--as when the shipment of test materials to Portland was lost, finally tracked down to some obscure corner of the Portland airport, and eventually arrived at the local coordinator's office in a 200-pound crate! Even had we been able to lift it, it would have been impossible to manipulate through the narrow doorway and up the stairs to our second floor office. The solution was simple: we opened the crate with the aid of a few crowbars donated by neighboring storekeepers, and then tester trainees, ETS staff, the driver of the air express van,

and several nearby residents proceeded to unload a cargo of dolls, wooden cranks, small umbrellas, tow trucks and other assorted oddities onto the sidewalk and up the stairs. The local coordinator was somewhat embarrassed, but undaunted.

A particularly difficult but instructive problem was encountered during the enumeration phase of the project when we were attempting to construct individual location maps to monitor interviewer assignments. This turned out to be unexpectedly difficult in the rural areas of Lee County, because frequently there were no named streets or official county roads. It was impossible to use available landmarks to guide the effort, since there was no up-to-date official map of the county on which such landmarks could be identified. The most recent county map had been prepared in the late 1930's, with some irregular and scattered updating in 1948. The problem was finally resolved by hiring several local residents who had lived in the area for many years. These persons traveled through the county making detailed maps of each school district. This appeared to be an effective solution, and their maps were used to prepare the needed location maps. Other steps taken in Lee County to locate potential subjects included interviewing the local grocers, postmaster and staff of the Alabama Power Company in Smith's Station. Even then, the problem of locating all families residing in and around Smith's Station was not completely resolved, and several area residents with detailed knowledge of the district were able to locate for us some households that had been missed.

The problem of locating the expected number of households was not unique to the rural areas of Lee County. In St. Louis, for example, it was found that many of the neighborhoods in the study have houses with entrances in

alleyways that do not appear on official maps. Here, too, the solution involved reliance on the knowledge and cooperation of local residents.

Other problems were more lamentable--both in their personal consequences and the impediments they posed for the study. The turnover in testing staff at the centers, for example, was much greater than we had anticipated. Among the many reasons for this turnover were the following: the job of a tester is a temporary one, so some of the most capable testers resigned for longer-term employment; some testers had made other summer commitments or had to stay home with children; various private emergencies were responsible for additional loss of personnel. It was a hard fact of life for our testers that many lacked personal support and back-up resources; consequently, emergencies arose more frequently and were more incapacitating than might otherwise have been the case. Emergencies of a community nature also frequently arose such as rent strikes, incidents of dope peddling, and in one site a local riot, which were especially debilitating and reflected the conditions of social turmoil which often characterize life in disadvantaged areas. Another factor which required considerable time and attention from ETS as well as local study personnel was the fear and distrust many ghetto residents display towards being interviewed--coupled with a hostility and boredome engendered by their having been overinterviewed in the recent past.

Despite the many difficulties encountered, however, the study continued operating and data were collected. We believe they are "good" data. The only substantial change in procedure made during the second year of data collection was to appoint a local professional person as monitor in each study site--someone intimately acquainted with the community who could be readily available to answer questions concerning the various data collection procedures.

Assistant trainers were also recruited locally, who in some instances were testers the year before. Princeton staff trained trainers and made periodic visits, but the study became increasingly community based.

4. DESCRIPTION OF THE STUDY POPULATION

As already indicated, the attempt to gather data on children in the four selected sites was generally successful. At least partial data were obtained for a total of 1872 children--or 99% of the number of children (1882) anticipated in a previous ETS report to the Office of Economic Opportunity (ETS, PR-68-4). The distribution of children from site to site, however, was different from our expectations. We had expected St. Louis and Trenton to be our large sites, but encountered more problems in those cities which hampered data collection. On the other hand, we located more children than had been anticipated in both Lee County and Portland. The number of children at each site is shown in Table 1. These are children who fit all the qualifications for membership in the sample and about whom we have collected at least one unit of information (e.g., parent interview, child test, health record) in the 1969 testing program.

Table 1*

Number of Subjects in Each Site
(Spring 1969: Year 1)

Site	Number of Subjects	Percent
Lee County	593	31.7
Portland	541	28.9
St. Louis	354	18.9
Trenton	384	20.5
TOTAL	1872	100.0

*Tables 1,2&3 are updated versions of those that appeared in the larger report on which this summary is based (ETS, PR-70-20).

Because of the substantial differences in sample size by site, there is need for caution in interpreting statistics computed over all subjects--since any factors associated with site (such as region of the country, city size, and socio-economic status) are disproportionately represented.

Similarly, racial composition varies strikingly from site to site. The basic percentages of children in each community are given in Table 2. While we see that the total sample is 62.6% black, 36.4% white, and 1% classified as "other" (i.e., Puerto Rican, American Indian), the proportion of blacks varies from 77.3% of the Trenton sample to only 47% of the Lee County sample. Therefore, general comparisons from site to site will inevitably require consideration of racial as well as other differences.

Table 2*

Racial Composition in Sites by Percentages

	BLACK	WHITE	OTHER	TOTAL
Lee County	47.0	52.6	.3	99.9
Portland	65.1	32.9	2.0	100.0
St. Louis	68.6	30.9	.3	99.8
Trenton	77.3	21.6	1.0	99.9
TOTAL	62.6	36.4	1.0	100.0

As one might expect, there are small differences in the numbers of boys and girls from site to site. The percentage of boys and girls is about equal in Trenton and St. Louis, but there is a slightly larger number of boys in both Lee County and Portland. The net result is that the total sample is 53% boys and 47% girls. This difference is sufficient to warrant care in making general comparisons of Lee County and Portland with Trenton and St. Louis, but it does not appear as serious a matter as the confounding of

the other classification variables (i.e., site, race, socio-economic status, preschool attendance).

Information concerning preschool attendance was not available until the fall of 1969, when the sample children were first eligible for enrollment in a Head Start program. The statistics for attendance in Head Start and other preschool programs are shown in Table 3. This table describes three groups (columns 1-3). The first column (HS) consists of children who are known to have attended Head Start during the 1969-70 school year. Information was taken from Head Start registers in the communities, and the percentages given in Table 3 reflect the minimum number of Head Start children from the original sample. The second column, other preschool (PS), consists of children known to have attended other preschool or nursery programs during 1969-70; so this, too, is a minimum number. Children who were not on Head Start or other preschool lists are in the "other" category. While it is likely that many of these children did not attend a preschool program, this category may also include children who moved out of the community and were enrolled in Head Start elsewhere or those who are enrolled in Head Start out of the general area. As children in the "other" category are followed up, they may be reassigned to different categories.

Table 3*

Percentages Attending Head Start and Other Preschool Programs, Classified by Site

	HS	PS	OTHER	TOTAL
Portland	38.4	9.6	51.9	99.9
St. Louis	34.2	1.4	64.1	99.7
Trenton	29.4	8.6	62.0	100.0
TOTAL	34.6	7.0	58.4	100.0

*Lee County is not included here because Head Start was not made available to Lee County youngsters until their kindergarten year.

From the table we see that one-third of the children attended Head Start across the sites. The percentage of children in the Head Start category varies from 1.4 to 9.6. It should also be pointed out that this general classification does not distinguish between children who are and are not eligible for Head Start in the "other" category. Future analyses will make this distinction, but it is a salient point to keep in mind for the present report.

The basic information discussed so far concerning site, race, sex, and preschool attendance differences may be summarized as follows:

a. The number of subjects at different sites varies, with Lee County and Portland together constituting about 61% of the sample.

b. The sample is approximately 63% black.

c. Boys make up 53% of the sample; girls 47%.

d. For the three sites in which children have already had the opportunity to attend Head Start, about 35% of the sample attended Head Start, 7% attended other preschool programs, and 58.4% had no known attendance in Head Start or other preschool programs.

While these facts are useful for summary descriptive purposes, they represent a simplistic generalization about the sample. That is, there are substantial interactions between certain classification variables--as well as between classification variables and socioeconomic status--which must be kept in mind in interpreting any findings. The first confounding interaction is that between race and Head Start attendance. In our sample, substantially more black children than white children attended Head Start. While this varies from site to site, in the combined sample from Trenton, St. Louis and Portland only 16% of the children who attended Head Start were white. It should be noted that our sample thus differs from Head Start population statistics. According to the Bureau of Census sampling of 5% of the children attending a full year Head Start program in 1969, 52.6% were black. Socio-

economic status is also confounded with race. Thus, although the fathers of both blacks and whites tend to be in blue-collar positions, a disproportionately large number of blacks are so classified. The parents of white children, in general, have also had more schooling than the parents of black children (by about a half to one full year more)--except in St. Louis where the reverse is true. The average highest school level attained by both mothers and fathers across all sites was eleventh grade. Finally, it should be noted that educational and occupational data were obtained for substantially fewer fathers than mothers--and this difference was greater for blacks than for whites and for children who attended Head Start than for others. This actually reflects the fact that there are fewer father-present families within the black sample.

To summarize, there are many confounding interactions among the gross classification categories we have so far delineated. In future analyses these categories will be considerably refined and replaced by variables which make more psychological sense. For the present, however, these confoundings do mean that interpretations of Year 1 data must be regarded as tentative.

5. PRELIMINARY FINDINGS AND IMPLICATIONS

So far, we have developed only the barest statistical picture of our sample--how many fall into certain classification categories (site, sex, race, preschool attendance) and how they may be described with respect to such standard indices as level of education and family structure (father present/absent). In this last section of the report we will attempt to put some flesh on the statistical skeleton.

General considerations

Before presenting any descriptive information, however, several factors

should be stressed. First, the discussion that follows is based entirely on preliminary analysis of selected information gathered during the first year (1969) of data collection. By "preliminary analysis" is meant that these results are but the first in a projected series of analyses. They represent only an initial general look at individual measures. More exhaustive analysis of each measure is required for adequate understanding of its validity; and extensive interactional analyses between measures must be run before we are in a position to interpret the total picture. By "selected information" we mean quite literally that this report deals only with a selected number of measures administered during 1969. The particular selection was made on the following bases: (a) representativeness of the several domains (physical, intellectual, personal, social, etc.) of child measures; (b) representation of all major classification categories--thus, Lee County data is excluded here because of lack of Head Start availability; and (c) practical feasibility in terms of data processing and analysis.

What should be clearly stated now (if not already apparent) is that this type of research is both time consuming and costly. Not only is data collection costly in the utilization and training of local personnel, but also in the nature of the measures and procedures used. Because there are few standard "off-the-shelf" measures suitable for the purposes of this research with very young children, we have relied almost exclusively on experimental measures and, where necessary, have devised new instruments. Thus, careful analysis of each measure is of primary importance. Similarly, we have stressed procedures for collecting information about human beings--not just "subjects." No mother responded to an interview by answering on a multiple-choice IBM answer sheet, though such a procedure would have been vastly more

economical; nor was any child shunted through testing with little individual attention paid to him or his unique responses. To do so would have been to obtain less valuable data for a basic understanding of child development. For some of the assessment procedures, the child's responses were fully taped and then analyzed at ETS. In all cases, on-the-spot scoring and coding procedures were simplified so that testers could concentrate their maximum attention on gaining the child's cooperation and involving him in the task. When procedures such as these are used, data do not come back from the field in computer-ready form. Each answer sheet is individually checked and additional scoring and coding operations are performed at ETS before the information is ever keypunched onto cards for machine processing. Thus, given the inevitable limitations of finite staff resources and funds, the priorities of this research dictate that data analysis can best proceed in a series of steps. This report reflects only the first in that series.

With this by way of introduction, let us try to depict something of the children's cognitive, affective, perceptual, and physical characteristics as they appeared initially in the study. These are set against a background of information obtained from their mothers. (See the August 1970 report, ETS, PR-70-20, for a detailed presentation of these findings.)

The families in the study

In measuring aspects of the family environment that influence a child's development, it is important to distinguish between status and process variables. Simply stated, this is the distinction between what parents are (e.g., ethnic membership, occupational-educational level) and what they do (e.g., styles of interaction with the child, aspirations communicated to him). Previous

research suggests that it is the process variables which have the greater impact on a child's life; and they certainly have greater theoretical utility for explaining how the environment mediates experience in critical ways. A corollary is that the mother is particularly influential in transmitting to the young child behaviors and adaptations shaped by the environment. In later years the environment may increasingly exert direct influence upon the child, but during the preschool phase of the study the exchange between mother and child must be the focus of attention. For these reasons then, greater priority has been given to process variables in the study--particularly process variables related to the mother's perceptions and styles of interaction. Information about situational and status characteristics have been obtained only insofar as these either (a) define important aspects of the child's psychological as well as physical environment, or (b) identify subpopulations which should be analyzed separately.

In order to obtain information on the family that appears most relevant, the following types of process, status and situational variables have been included in the study.

Process variables

Feelings of control over the environment: Broadly speaking, this variable concerns the degree to which a person feels he can shape and direct his own future and the events which affect him. At one extreme is the conviction that one's actions make the decisive difference in life--and at the other, a belief that the consequences of life are in no way under one's own control. These beliefs have generally been referred to as internal vs. external locus of control, or sense of powerfulness vs. powerlessness.

Utilization of community resources (participation versus alienation): Closely related to the concept of internal versus external control is the sociological notion of alienation. Although it is possible to distinguish several meanings of the term, "alienation" is used here to mean a sense of futility, apathy, and general distrust with respect to social participation. It seems reasonable to suspect that such alienation would arrest development and lead to inconsistency of child-rearing practices. At

the very least, a mother's alienation from the community would serve to reduce her child's potential opportunities for cognitive stimulation.

Control techniques: Three types of family or maternal techniques for regulating and controlling the child have been identified and studied in previous work. These strategies differ primarily in the type of authority appeals made to the child. "Status-normative" control is characterized by demands for unquestioning obedience to an absolute authority--either the parents' by virtue of their status or society by virtue of tradition. "Internal-subjective" control strategies take the child's feelings into account and these serve to moderate demands made upon him. In turn, appeal is made to the feelings of other people as a rationale for behavior codes. Attention is directed toward inner states (feelings, moods, personal preferences) rather than to rules. "Cognitive-rational" appeals, on the other hand, stress objective informational feedback and direct the child's attention to the logical consequences of behavior rather than to feelings or established rules.

Teaching techniques: These refer to how the mother organizes and gives meaning to the information that reaches her child and to how she helps him make sense of new information. Differences observed among mothers may be conceptualized as differences in complex, multidimensional behavior which ranges from the restricted, repetitive, and reactive to the more elaborated, varied, and proactive.

Language process variables: Related to teaching techniques are the language codes that predominate between mother and child and/or pervade the home. These codes, identified as elaborated or restricted, are seen as important mediators of the environment, resulting in different modes of information processing and problem solving in the child.

Differentiation of the environment--knowledge, attitudes, beliefs: All theories of development, whether cognitive or social, revolve around the individual's progressive differentiation of self and environment. The more cognitively oriented theories have gone farthest in postulating a specific linkage between available differentiations in the environment and the child's developing belief systems and the ability to make discriminations. For this reason, major emphasis in studying the family has been given to cognitive variables. In particular, we are concerned with the mother's objective differentiation of the world (her knowledge of it) as well as her subjective differentiation (her attitudes and beliefs about it). The aspects of the mother's environment we are focussing on are: her child, the local community, the school, and the larger educational system.

Status variables

Information for identifying subpopulations: Such information consists of age, sex, and race of child; age, race, and occupation of parents; language spoken in the home; locale (urban-rural); and type of dwelling.

Educational level of parents

Family structure: Presence or absence of father in the home.

Number of adults in the household: Particularly adult availability as defined by adult-to-child ratio.

Number of other children in the household

Home resources: Included here are such things as availability of books, toys, records, radio, TV, etc.--variables that have traditionally been associated with social status. The logical relevance of these variables for the study is seen in the indication they may give of the amount of cognitive stimulation and/or emotional support which is available for the child. It should be recognized, however, that although stimulation level is considered an important factor in intellecual growth, the relevance of the last three variables suggests that it is not amount of stimulation alone, but the patterning and nonrandomness of such stimulation which is crucial. Finally, it should be noted that changes in all the above status variables may constitute a rough index for assessing the upward or downward mobility of the family during the period of the study.

Situational variables

Ordinal position of target child: While the relevance of this variable may not be immediately obvious, both sibling rank and family size have been found to correlate with several dimensions of childrearing practice. Logically, it might be concluded that both of these factors influence the extent to which a parent can engage in a variety of activities which inherently require sustained participation.

Behavior patterns of older siblings: On the assumption that older siblings are important potential models for the child, we included questions relating to the older children's school achievement, attitude toward school, membership in peer groups, etc. These data will be collected in later years as the target child is ready to move into his siblings' world.

Conditions constituting "stress" for the child: It is hypothesized that a number of family conditions serve to constrict the child's psychological environment and create a stressful situation. Among such conditions are instability or frequent mobility of the family; severe or recurrent illness in the family; erratic versus relatively steady employment history; physical and psychological "depression" of the home and surroundings--e.g., repair of the dwelling inside and out; lighting conditions inside the home; potential hazards in the neighborhood (broken glass, location near a bar); crowding in the home; etc.

Child's possessions--material objects and living space: Insofar as possible, information was obtained on the number of things (books, toys, etc.) the child possesses; whether he has a designated space in the house for his things (a closet or drawer space); and whether he has places (a room, a bed) that are his own or which are available for his private use. This variable seems particularly important for the ghetto

child, who often has nothing to call his own nor any place to which he may escape for peace and solitude.

Child's range of mobility: Relevant to the amount of environmental stimulation is diversity in the environment. Where is the child allowed to play? Where is he allowed to go in the neighborhood? On what excursions outside the house is he taken (supermarket, visiting relatives, etc.)? It is only logical to expect that the number of different places a child goes and different encounters he has will largely determine the variety of stimulation available to him.

To study these various family influences, we administered both a home interview (approximately 90 minutes) and three structured mother-child situations in which the mother is taught a relatively simple task and she, in turn, teaches it to her child. For this report, however, only data from the closed-ended questions of the interview are included--with resulting limited information on such process variables as mother's teaching techniques or language codes.

As expected, the sample is predominantly a lower socioeconomic one, with many of the concomitants of low status: feelings of powerlessness and alienation from society, discrepancies between aspirations and actual expectancies, limited knowledge of community resources, limited home resources, less adult availability to the children, more physical crowding and material deprivation, greater reliance on kinship contacts, and substantially fewer fathers present in the home. To elaborate on some of these generalizations, a substantial number of mothers (ranging from 8% to 30% at different sites) revealed that they did not know what local nursery schools, clinics, summer day camps or after-hour school programs were available to their community. A majority of mothers (61%) felt that political candidates run more for personal advancement than for accomplishing campaign promises, and 32% of the mothers had never voted. Although 61% reported they would join their neighbors to solve local problems, the

majority of them felt that their combined efforts would be ineffective. Similarly, although the majority (55%) were able to describe a concrete problem in the community that had needed attention, they also reported that the needed improvement did not occur. In the opinion of over a third of the mothers, there was no local person presently successful in solving community problems. Twenty-two percent reported that it was not safe for their child to play outside. Probably as a consequence of these and other complaints, the majority of mothers (59%) would not recommend that anyone move into their area.

As previously found with lower socioeconomic groups, most mothers reported belonging to no clubs or groups. Memberships that did occur were primarily in school-related and religious groups. Most of the study families (83%) had relatives living within 20 miles whom they visited, but other types of social interaction were less common. Twenty-eight percent of the mothers said they had no friends <u>at all</u> in the general area; thirty-two percent said they did not go out for entertainment.

Although nearly all families had a TV set or radio, a substantial number had no car, phonograph, telephone, encyclopedia or dictionary. A quarter to over a third of the children (depending on site) did not have their own bed or place to keep clothes, toys and other possessions. Only 17% of the children slept alone.

With respect to perception of her child, some of the data suggest that many mothers lack differentiated criteria for evaluating their child's achievements and/or lack of knowledge about those achievements. For example, when asked about the child's ability to name the primary colors and various body parts, to give his own full name, and to count to five, from 56% to 95% of the mothers said their child could do each of the above tasks "now"--

a statement markedly contradicted by their child's performance on those same items in the testing situation.

Although a majority of parents responded positively when questioned about their neighborhood schools, a sizable minority indicated discontent. Thirty-one percent felt that teachers in their district schools do not understand local problems; and an equal number indicated they felt teachers make children doubt what they are taught at home. Fifty-two percent reported overcrowding in their schools, and 43% felt that teachers neglect some children in their classes. (Future coding of the open-ended interview responses will be concerned with the more important question of the perceived reasons for teacher neglect.) Although 74% stated they felt they could disagree with the school principal, almost 30% said they could not improve their neighborhood schools--with an additional 20% not knowing whether they could or could not.

While these were the general findings, considerable variation was also evidenced. The occurrence of this variability agrees with Zigler's (1968) conclusion that there are greater differences in child-rearing practices within social status levels than between levels, and with Caldwell's (1970) recent discussion of the much greater range (than had previously been reported) in level of stimulation and support offered a child in lower-class homes. It is inappropriate, therefore, to speak in terms of a single homogeneous "culture of poverty." There are many such subcultures, reflecting a variety of life styles.

Reviewing the results obtained by site--Portland mothers expressed greater feelings of efficacy, showed higher orientations to and expectations of achievement, spent more time reading to the children, participated more

in groups and informal social activities; while St. Louis mothers, on the average, were lowest in these behaviors and attitudes. The housing in these two sites was also markedly different, with most St. Louis families living in very crowded and decrepit housing. Although results obtained from Trenton revealed many of the same low-income correlates as for St. Louis (but to a somewhat lesser extent), Trenton mothers showed more involvement in community organizations and greater participation in solving local community problems. Additional community data being collected should provide insights into some of the reasons for the differences between these findings.

Variation was also notable between the preschool attendance categories. Those families who enrolled the study child in Head Start were, on the average, characterized by greater deprivation than those families who sent their child to another preschool program or who were not known to have enrolled their child in any program. Thus, for this sample, participation in Head Start was generally by those who would appear to need it most. They lived in older, more run-down homes and under more crowded conditions. Fathers were absent in 50% of the "Head Start" homes. In contrast to families not known to have sent their child to any preschool program, mothers in "Head Start" families, expressed somewhat more favorable attitudes towards local schools, participated somewhat more in the community, and expressed more active responsibility for their child's school performance. Since the Head Start group had a higher percentage of siblings who attended Head Start, this prior exposure may account for their greater involvement with the schools and community. Of course, it is equally possible that involvement in community concerns had led them in the first place to enroll their

children in Head Start. It is hoped that more sophisticated analyses and longitudinal data will enable us to untangle such questions.

Future investigations will be directed toward analyzing the relationship of the various status and process variables with each other and with the several child measures. By isolating more exact indicators of home environment rather than just demographic characteristics, we should be in a better position to explain why, within homes of similar socioeconomic status, so much variation in process is found, and why there are so many notable exceptions to the "low status--low achievement" maxim.

The children in the study

In considering the children, we will first turn attention to the vitally important concern of health. Following completion of the testing cycle, physical examinations were scheduled for all study children. Unfortunately, the information obtained is limited in both extent and interpretability. This stems in part from the necessity for relatively brief individual appointments and from the fact that administration of some measures must be considered only crudely standardized. While a comprehensive medical examination was not given, attention was focused on those physical variables considered expecially relevant to intellectual/social development. In addition, two tasks were administered at the testing centers aimed at assessing the child's vigor--one was speed of running a given distance; the other, the number of turns the child could make on a large wooden crank within a given time limit.

On both of the latter tasks (running time and crank turning) the data showed practice and age effects, suggesting that differences in coordination and muscle strength were also being tapped. On both tasks, Portland children had the highest and Trenton children the lowest vigor scores. Notwithstanding the many cautions which must be considered in interpreting the Child Health

Record, physical examination results do suggest differential exposure to conditions of health risk, permitting us to delineate subgroups of children whose health-related conditions potentially handicap them for school adjustment. Consistent with previous research findings, we found a higher frequency of health-related problems among our predominantly low socio-economic sample than is found with upper socioeconomic groups--e.g., more prenatal, birth and postnatal complications, more abnormal findings on the visual and auditory screening tests, higher suggested incidence of neurological problems, below average hemoglobin values, and fewer immunizations. It is interesting to note that site differences in average hemoglobin values, which may reflect iron-deficiency anemia, paralleled the site differences in vigor scores (i.e., Portland highest and Trenton lowest). The St. Louis data, as a whole, suggest the pervasive physical and emotional consequences of living under deprived conditions, since there was a higher incidence of a variety of health-related problems at that site.

Other findings from the Child Health Record with immediate relevance to the testing results are the mothers' reporting of significantly more developmental problems for boys, the already mentioned high incidence of problems in St. Louis, and the significantly fewer problems reported for children who later attended "other preschool" programs.

To describe the child's functioning in other areas, we included measures to encompass objectives claimed by many preschool and primary programs, and the aspects of development that social science theory holds as important. That is, we included measures of more academic "school-related" skills (behaviors and skills which are "expected" of the child enrolling in kindergarten or first grade in most public schools) as well

as measures which would help us delineate basic perceptual, cognitive, and personal-social processes and their course of development. In all, 27 measures were administered (14 of which have been analyzed for purposes of this report). To describe only the fourteen measures and data obtained from them in any amount of detail would be not only a laborious task--but would make for even more laborious reading. Thus, what follows is a general description of measurement domains and the highlights of test findings.

Several measures were included to assess verbal skills--some focusing on language comprehension and others on the child's ability to give reasons, or a rationale, for the way he had classified various toys (e.g., all red, all green, all yellow). In general, the children showed greater competence in their understanding of language than in their use of language. On one of the sorting tasks, for example, approximately half of the children were able to categorize toys according to adult-accepted criteria, but very few were able to verbalize logical or even very coherent reasons for the groupings they had made. While a discrepancy between understanding language and using it fluently is to be expected among children of this age range, our sample shows greater discrepancy than typically found for middle-class children.

Of particular interest in the verbal area were results obtained on a test measuring comprehension of grammatical rules and structures in the English language. In sharp contrast to claims made by some educators that "disadvantaged" children lack such comprehension, we found almost perfect understanding of prepositions and the understanding of negation (the function of the word "not"). While we had obtained similar results on this measure with other "disadvantaged" populations--ranging from New York City four and

and five-year-olds to four-year-old children of black migrant workers in Florida--the Longitudinal Study children were the youngest sample on which the measure had been tried. What this would imply, then, is that rules governing the logical distinctions of negation and location (in, on, under, behind, etc.) are acquired very early by children--and they are acquired, or constructed, equally well by both disadvantaged and advantaged youngsters. Considering the fact that instructional materials are now being marketed which include some units designed to teach disadvantaged children the meaning of prepositions and the function of "not," this finding would seem especially noteworthy.

To summarize and tentatively speculate about the verbal results, it may be that basic language comprehension is relatively unaffected by the environment. It is perhaps an inherent and universal potential of man that can be developed under all but the most extreme of circumstances (e.g., little contact with the raw data of language itself). Language use, on the other hand, may be much more sensitive to the influence of "teaching models" in the home. As the study progresses, we will be able to relate these two variables more systematically.

Within the perceptual area, two tasks were administered and results were generally in line with what would be expected developmentally of children within the age range. One of the tasks, the Seguin Form Board, was interesting in that it is an established measure that has long been used in the study of child development (about the only such task included in our battery). Here, results obtained on our children were quite similar to results obtained on a middle-class sample 30 years ago! What this suggests is that only quite severe deprivation affects perceptual development; and that

beyond a certain threshold level, perceptual discrimination skills probably have little relation to other aspects of cognitive development. It should be noted, however, that a subgroup of the St. Louis children did perform relatively poorly in this area--a finding which again suggests that we may have a pocket of exceptional deprivation among the St. Louis sample.

Other domains represented by the study measures included: (a) the development of basic quantitative concepts and skills; (b) highly school-related or "school-expected" skills--e.g., naming colors, identifying geometric shapes, knowledge of simple facts possessed by most middle-class children, etc.; (c) cognitive styles, or habitual ways of performing, such as impulsivity versus reflectivity; (d) self concept--an area in which we are least sure of the validity or meaning of the results obtained; and (e) personal-social characteristics as revealed by the child's behavior during a free play time. With notable exceptions, the general trend of results may be summarized as follows. St. Louis children tended to perform the poorest and Portland children the best. Children who later attended Head Start programs, on the whole, scored slightly but rather consistently lower than children who attended other preschool programs or who had no known preschool attendance. Sex differences on the measures were variable and are at this point perhaps the most difficult to interpret. Where such differences did exist, they tended to be slightly in favor of the girls. Whether this reflects differences in sustained attention and following instructions, rather than genuinely greater competence on the tasks involved, can not as yet be answered. It should again be stressed that the site differences and "Head Start" differences reported above are as yet also relatively uninterpretable, since

these categories are confounded with other factors. Future data analyses will proceed to untangle some of the confounding, providing the ground for more insightful statements than merely "Portland children perform better than St. Louis children." The data do suggest, however, that within this sample, for these domains, poverty is associated with developmental differences.

By far the most compelling finding from the test results is the wide range of individual differences exhibited within this relatively restricted sample of children. Low-income youngsters are not a homogeneous group. Given a middle-class sample, there would be considerable overlap in the distribution of scores. Children from low-income families span a much wider range of cognitive, personal-social, perceptual, and physical functioning than some would have us believe.

Implications: immediate and future

What implications, or value, has the Longitudinal Study had so far, and what does it promise for the future? Within the realm of the more immediate, it is possible to single out at least three contributions worthy of comment. First, there has been immediate payoff in the communities involved in terms of dollars spent in hiring local employees and purchasing necessary testing supplies. More important, the job training provided has increased the skills and, more important, the confidence of some of the local residents.

A second immediate implication of our results to date concerns the fallacy of assuming that Head Start children and families are comparable to non-Head Start groups--regardless of how similar they may look on certain surface characteristics. As mentioned earlier in the discussion on research

design, the "comparable group" assumption is questionable at best for naturally selected or post hoc groups; and results of studies on such an assumption must be regarded as "suspect" until proven otherwise. Our initial results indicate that Head Start families and children constitute a group which differs in many significant respects from other low-income groups.

A final immediate implication concerns Head Start program planning. If the data obtained from Year 2 of the study continue to support previous findings about disadvantaged children's understanding of certain grammatical structures, then modification of certain aspects of some experimental language curricula would seem called for. Admittedly, it is anticipated that many more substantial and far-ranging recommendations for program planning will emerge in future years--but at least this one modification may be justified in the very near future. Moreover, a number of tasks have been developed that have proven themselves to be appropriate in their range of difficulty and sensitivity to individual differences, enjoyed by most children, and relatively easy to administer. There is immediate need for such measures in the many evaluation studies of preschool programs currently underway.

With respect to long-range implications of the study, we have already pointed out the variation which exists within our relatively restricted sample--restricted, at least, in terms of socioeconomic level. As the study progresses, we will have an opportunity to identify important distinctions among subpopulations who live in relative poverty. That is, we will be able to define more clearly those environmental influences and features which are simply "different" from middle-class standards--and those which act

as genuinely impoverishing forces on the human mind and spirit.

There is another type of variation in the study which also has potential implications. By using such a wide variety of tasks, one becomes more aware of individual differences in the patterning of skills and abilities. Knowledge of such patterning of strengths and weaknesses is, of course, a necessary and powerful diagnostic tool for the effective planning of educational programs. As indicated earlier, most preschool program planning has had to rely on research done with middle-class children; this study should provide a unique data bank enabling more informed educational decisions to be made.

Most important of all, perhaps, is the opportunity this study provides for investigating the interaction between complex sets of variables over time. Among other things, this means an opportunity to pinpoint variables that are critical for understanding the interrelationship between affective and intellectual domains in child development and the differential effectiveness of various educational environments and programs. The overall picture of complex interaction between community-family-child-school influences should become clearer. A major thrust of Head Start is to help the low-income family resist alienation--resist the tendency to turn away from the community. Both formal and informal contacts with others are valuable sources of information, attitudes, and values; they bring perspective on community norms. Previous research suggests that as the mother interacts more, she feels less powerless, more optimistic, and less likely to resort to status and authoritarian appeals for controlling her child. Thus, programs reducing alienation may in turn increase the child's developmental progress. We would also expect that as a result of Head Start participation the family

would become less alienated from the educational system and would come to define the school not only in a more positive way, but also in a more differentiated fashion. This, in turn, should provide the child with more adequate and useful images of the school, of the teacher, and of the role of active student. As the recently completed report about the impact of Head Start centers upon community institutions suggests (Kirschner Associates, 1970), Head Start's latent functions in the educational and health areas may well equal the manifest ones. The diffusion of latent effects in the schools and local community over time would logically be expected to minimize differences between Head Start and non-Head Start families--as these initially appeared in our sample. Since we have an opportunity to study families and communities over time, we have an opportunity to see. Additional examples of interactive processes that this study will enable us to investigate concern the match between teacher and maternal teaching styles and the effects on the child's behavior; the relationship between mother-child and teacher-child interaction; and maternal powerlessness and the extent of the child's involvement in the classroom.

It is impossible to conclude this report without one final comment about the data reported so far. They show that research can be done in low-income areas. It is accomplished by making measures as relevant as possible; getting advice from community residents; recruiting and training local personnel to carry out most of the operations required. Further, they show that administering individual tests in educational research is not the exclusive prerogative of the graduate student and other educational elite. We have been strengthened in our belief that traditional training models must be questioned: effective training must involve mutual learning and

cross-socialization. The local women in our study learned effectively to perform a wide variety of demanding tasks. They managed well under many difficult local conditions--often quite difficult. Clearly, we have joined many others in discovering a large pool of as yet untapped human resources. Through our continuing joint efforts, we hope to provide information that will make a significant contribution to the policy-making decisions which affect the well-being of our nation's children and their families.

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APPENDIX A

Project Personnel for the 1970-71 Study Year

Project Director: Virginia Shipman

ETS Administrative Advisory Committee: Herman F. Smith, Chairman
Arthur L. Benson, Robert L. Linn

Administration:

Executive Assistant: May C. Reinhardt
Administrative Assistant: James Towery
Coding Supervisor: Joan Tyson
Financial Coordinator: Carol McKnight

Field Operations:

Lee County, Alabama
Technical Consultant: Ray Phillips
Local Coordinator: Carolyn Tamblyn
Testers and Observers

Portland, Oregon
Technical Consultant: Robert Hughley
Technical Assistant: Mary Henderson
Testers and Observers

St. Louis, Missouri
Technical Consultant: Arthur Littleton
Observers

Trenton, New Jersey
Technical Consultant: Nancy Kuykendall
Testers and Observers

Research:

Scarvia Anderson, Anne Bussis, Edward Chittenden, Diran Dermen, Walter Emmerich, Michael Lewis, Carolyn Massad, Masako Tanaka, William Ward, Ihor Wynnyckyj

Analysis:

Specialist for Design and Analysis: Albert E. Beaton
Coordinator of Analysis: John L. Barone
Assistants for Analysis: Thomas Dwyer, Norma Hvasta, Robert Patrick, Emily White